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Schumpeterian innovations, financial innovations and instability: An institutional perspective



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Abstract This paper seeks to assess the nature of financial innovations as regards the economic stability throughout an institutional framework within the Schumpeterian tradition. While in the Schumpeterian evolutionary process entrepreneurial innovations are assumed to lead the entire economy towards economic development, financial innovations do not obviously generate the same positive outcome for economic evolution. To point to the ambiguous nature of financial innovations the paper suggests a monetary interpretation of Schumpeterian capitalist dynamics and sheds light on the role of the institutional environment to ensure viable economic development. It then argues that in highly liberalized environment, unconstrained financial dynamics may lead to system-wide crises and make public regulatory schemes necessary for the sake of systemic stability.

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Innovaciones de Schumpeter, innovaciones e inestabilidad financieras: una perspectiva institucional

Resumen Este documento trata de evaluar la naturaleza de las innovaciones financieras, en lo que concierne a la estabilidad económica a través de un marco institucional dentro de la tradición de Schumpeter. Mientras en el proceso evolucionario de Schumpeter se supone que las innovaciones emprendedoras conducen a toda la economía hacia el desarrollo económico, las innovaciones financieras no generan obviamente el mismo resultado positivo para la evolución económica. Apuntando a la naturaleza ambigua de las innovaciones financieras, el documento sugiere una interpretación monetaria de la dinámica capitalista de Schumpeter, arrojando luz

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sobre el papel del entorno institucional, para garantizar el desarrollo económico viable. A continuación argumenta que en un entorno altamente liberalizado, la dinámica financiera sin limitaciones puede originar crisis a nivel sistémico, haciendo de los programas regulatorios públicos una necesidad en aras de la estabilidad sistémica.

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1. Introduction

Schumpeter maintains that capitalist development rests on entrepreneurial innovation-led real sectors' changes. However, he also states that the financing of productive activities is at the core of the process of development. Financial institutions and markets (rules, regulation, banks, financial intermediaries) and their evolution in time should then be studied as crucial concerns in the analysis of economic evolution.

From this perspective, this paper presents an institutional framework within the Schumpeterian theoretical tradition through an examination of the role of innovations and competition in banking and finance and their consequences on systemic stability. Unlike the static neo-classical competition model, the Schumpeterian theory of economic evolution is related to a dynamic competition where rivalry through innovations shapes the foundations and the existence of economic agents. But contrary to the effects of Schumpeterian entrepreneurial innovations (assumed to feed an incessant creative destruction process), financial innovations may generate a destructive creation process and hamper economic development.

The first section shows that the Schumpeterian analysis of economic development is framed from an institutionalist perspective of endogenous change where financing conditions of productive activities play a crucial role. Creative destruction comes into the picture through entrepreneurial innovations whose impulsion stems from the rivalry between the existing structure (the "old" things) and the novelty (the "new" things). Thus the concept of competition is a dynamic and active process contrary to the textbooks' perfectly competitive markets adjustment model. In such a setting, the monetary character of capitalist economy is underlined and the crucial role of bank credit in the financing of new combinations is emphasized. The second section maintains that the evolution of money markets, though not detailed by Schumpeter, seems to respond to specific competitive and regulatory dynamics, closely related to institutional changes in financial markets. However, specific characteristics of capitalist financial dynamics make that unlike the positive consequences of Schumpeterian entrepreneurial innovations on economic growth, liberalized financial markets and subsequent innovations may generate some destabilizing dynamics. We then argue that the creative destruction process may turn out to be a destructive creation when financial innovations are not regulated in a suitable way. The last section presents some concluding remarks.

2. Discontinuous economic change: from entrepreneurial dynamics to monetary economy

In the Schumpeterian theory (Schumpeter, 1927, 1928, 1934), economic evolution is a process of discontinuous endogenous change since it comes from within – from entrepreneurs' decisions and actions – without any competitive market adjustment process. Schumpeter states that economic dynamics lie in how capitalism creates and destroys the existing structures through entrepreneurs' innovations. In this picture, there is a strong relationship between innovation and competition. But unlike the models of perfectly competitive equilibrium, the Schumpeterian competition is not a self-adjustment mechanism. This is a dynamic of rivalry in an incessant economic change without any central direction leading the economy to a general equilibrium. Such an evolutionary process is related to a specific institutional structure of money and financial markets since the behaviour of banks (bank-credit) and then the financing conditions of entrepreneurial innovations are assumed to be major determinants of economic development.

2.1. Institutional dynamics: process of competition and innovation

An institutional approach frames the Schumpeterian analytical thought. In *History of Economic Analysis* (especially in the second chapter), Schumpeter adopts an institutional vision and defines the relevant analysis as "the study of questions how people behave at any time and what the economic effects are they produce by so behaving" (1961:21). He stresses that the human behaviour includes: "not only actions and motives and propensities but also the social institutions that are relevant to economic behaviour such as government, property inheritance, contract, and so on..." (1961:21).

The analysis of economic change is therefore related to the analysis of institutional change (Festré and Nasica, 2009) as the economic structure as well as innovations are constantly framed through the change of institutional structure. Schumpeter maintains that capitalist evolution changes not only the existing economic structure but also and more fundamentally the institutional structure of society: "The capitalist process not only destroys its own institutional framework but it also creates the conditions for another" (Schumpeter, 1947:162, 1970:114). This change is a social and historical process as it "does not emerge

simply from the preceding economic conditions, but only from the preceding total situation” (Schumpeter, 1934:58). The total situation is an institutional environment and economic change cannot be understood by means of any analysis of the circular flow (Schumpeter, 1934:61). The object of the investigation is to know how economic changes do take place and “to what economic phenomena do they give rise?” (Schumpeter, 1934:62). Development then relies on new combinations (new goods, methods of production, new markets, new organization, etc.) which give rise to entrepreneurial innovations: “What we, unscientifically, call economic progress means essentially putting productive resources to uses *hitherto untried in practice*, and withdrawing them from the uses they have served so far. That is what we call ‘innovation’” (Schumpeter, 1928:64).

These changes are endogenous phenomena and bring development by the own initiative of economic life, from the decisions of economic agents and especially from entrepreneurs, the people *who do new things* (Schumpeter, 1934:63). The capitalist economy is: “incessantly being revolutionized *from within* by new enterprise, i.e., by the intrusion of new commodities or new methods of production or new commercial opportunities into the industrial structure as it exists at any moment. Any existing structures and all the conditions of doing business are always in a process of change” (Schumpeter, 1947:31).

Contrary to standard neoclassical growth models where changes are mainly due to external shocks (technological shocks, demographic factors, etc.)¹, for Schumpeter the economy develops under the glaring endogenous and non-linear novelties and leaps: “To many, it will seem obvious to say that the “in-explicability” of development sketched above might perhaps just be an effect of the imperfect mastering of the facts, and that it will disappear with its perfection. Such an interpretation has obvious support, due to the fact that the better we master a state and the apprehensible factors of change, the sooner we develop an idea of things to come. Unfortunately, you do not reach the essence of the matter in this way. Even if we were able to sense to the utmost possible extent what will happen, the *triad* “indeterminacy, novelty, leap” remains unconquerable all the same. Both from a rational and a scientific perspective, this holds true even when we can sympathize with the actor, or reconstruct feelings, and put ourselves into the shoes of an actor. Based on a rational science standpoint, you might have the idea to remedy the situation by relegating the subject of the leap to the external interferences. You would then have formally cleaned up your own domain, whatever that might be, from the thing that cannot be mastered. However, the problem would show up again at the place where the element in question has been relegated to” (Schumpeter, 1932:117).

These non-linear novelties and leaps generate a process of destruction that comes from entrepreneurial innovations.

Such a process is creative as the *capitalist engine* is an engine of mass production which unavoidably means also production for the masses such that: “Queen Elizabeth owned silk stockings. The capitalist achievement does not typically consist in providing more silk stockings for queens but in bringing them within the reach of factory girls in return for steadily decreasing amounts of effort” (Schumpeter, 1947:67).

Here the positive effects of (technological) innovations for the entire society are brought to the fore as an outcome of capitalist productive dynamics. But this latter is before all a process of change which cannot be studied in terms of steady-state equilibrium: “In appraising the performance of competitive enterprise, the question whether it would or would not tend to maximize production in a perfectly equilibrated stationary condition of the economic process is hence almost, through not quite, irrelevant” (Schumpeter, 1947:77, n.5). Schumpeter then remarks that capitalism is not a perfectly competitive market adjustment process: “in capitalist reality as distinguished from its textbook picture, it is not that kind of competition which counts but the competition (...) which commands a decisive cost or quality advantage and which strikes not at the margin of the profits and the outputs of the existing firms but at their foundations and their very lives” (Schumpeter, 1947:84).

Thus the capitalist evolution is a predatory, cutthroat competition² that also includes struggles for control in the financial sphere (Schumpeter, 1947:80). Such a process goes through entrepreneurs’ innovations that create a motion which incessantly destroys the old structures and creates new ones. That is the creative destruction process which is the essential fact about capitalism” (Schumpeter, 1947:83). In this picture, the competition is a source of change through innovations that reshape existing structures such as positions of agents cannot rest on a pillow of previous situation. The Schumpeterian competition is the dynamic of a decentralized and private economy under the constraint that there is no planned-collective direction which would be given in the aim of reaching a general equilibrium state. This is the dynamic of rivalry in an incessant change process which destroys “pyramids sooner or later” (Schumpeter, 1947:85) and any concept of competition which neglects this essential element is “like *Hamlet* without Danish prince” (Schumpeter, 1947:86).

However, Schumpeter argues that parallel to its basic institutional characteristics (e.g. private property in means of production and regulation of the productive process by private contract), capitalism has developed a crucial device leading to expansive accumulation process. This device is the credit system, based on credit creation process (financing of enterprise by bank credit) (Schumpeter, 1947:167) that is an essential part of capitalist economy without which “the rest cannot be understood at all” (Schumpeter,

¹ In contemporaneous endogenous growth models, growth is assumed to be related to endogenous factors. But these models usually state specific hypotheses leading to static general equilibrium and do not take into account uncertainty and endogenous instability concerns in a decentralized market economy (see Aghion and Howitt, 1997 for a comprehensive presentation of those models).

² While Schumpeter maintains that “Innovation in competitive capitalism is typically embodied in the foundation of new firms (...)” (Schumpeter, 1928:70), he also remarks that “All this is different in “trustified” capitalism. Innovation is, in this case, not any more embodied typically in new firms, but goes on, within the big units now existing, largely independently of individual persons” (Schumpeter, 1928). See also Schumpeter (1947).

1961:318). The monetary system's *modus operandi* is then the first step of all economic propositions: "*capitalism is that form of private property economy in which innovations are carried out by means of borrowed money, which in general (...) implies credit creation*" (Schumpeter, 1939:223). As Marget (1951) emphasizes it, the working of monetary institutions affects the magnitude and direction of money flows and, as the economic life is a system of flows of monetary expenditures, economic change is closely related to monetary changes.

2.2. A credit economy and the money market

Following Schumpeter and some Schumpeterian analytical premises (Marget, 1951; Schneider, 1991; Messori, 1998) it seems to be possible to point out some monetary characteristics of a capitalist economy. Schumpeter (1939:548) stresses that: "Economic action cannot (...) be explained without taking account of money". The explanation of this proposition relies on the fact that to become an entrepreneur, an individual needs credit, he must borrow from banks. Then, what the entrepreneur first wants is credit: " (...) the entrepreneur – in principle and as a rule – does need credit, in the sense of a temporary transfer to him of purchasing power, in order to produce at all, to be able to carry out his new combinations, to *become* an entrepreneur. And this purchasing power does not flow towards him automatically, as to the producer in the circular flow, by the sale of what he produced in preceding periods. If he does not happen to possess it – and if he did then it would simply be the consequence of former development – he must borrow it. (...). He becomes a debtor in consequence of the logic of the process of development." (Schumpeter, 1934:102).

Thus the capitalist development is impossible without credit: "the structure of modern industry could not have been erected without it, that it makes the individual to a certain extent independent of inherited possessions, that talent in economic life rides to success on its debts (...)" (Schumpeter, 1934:70). The development process of capitalism is strongly dependent on credit-money because contrary to the normal circular flow within accustomed channels (where one can observe the *current credit* (Schumpeter, 1934:103 and 105), credit-money enables entrepreneurs to force the economic system into new channels (Schumpeter, 1934:106) since: "the capitalist credit system has grown out of and thrived on the financing of new combinations in all countries (...)" (Schumpeter, 1934:70). The means of payment created by the act of giving credit allow those who carry out new combinations to access to the existing stock of productive means, enabling them to buy productive assets. The definition of capital follows this monetary vision of the economy: "Capital is neither the whole nor a part of the means of production-original or produced. Nor is capital a stock of consumption goods. It is a special agent" (Schumpeter, 1934:123). Schumpeter makes the same assertion in his *Business Cycles* (1939:129). This "special-new agent" is related to a third market that the businessman calls the 'money market'. Schumpeterian entrepreneurs, initiators of the development process, have to be financed by banks. In the final phase entrepreneurial activities which could be financed are determined in money markets. The

effectiveness of entrepreneurial plans depends on banks' willingness to grant credit: "The money market is always, as it were, the headquarters of the capitalist system, from which orders go out to its individual divisions, and that which is debated and decided there is always in essence the settlement of plans for further development" (Schumpeter, 1934:126).

Such an assertion obviously rests on an endogenous credit-money approach that Schumpeter (1961) calls the "Monetary approach", opposite to the "Real approach". In this framework, savings do not finance entrepreneurs' activities because they come into the picture after the financing of entrepreneurs which makes them able to acquire production factors and distribute revenues in the economy. The credit structure projects beyond the existing wealth basis, it "creates claims to the social product" (Schumpeter, 1934:101) as the gap between products and means of production is bridged by the credit structure that places purchasing power created ad hoc at the disposal of entrepreneurs (Schumpeter, 1934:107). Then Schumpeter firmly asserts that: "As, however, innovation, being discontinuous and involving considerable change (...), requires large expenditure previous to the emergence of any revenue, credit becomes an essential element of the process. And we cannot turn to savings in order to account for the existence of a fund from which these credits are to flow. For this would imply the existence of previous profits, without which there would not be anything like the required amount – even as it is, savings usually lag behind requirements – and assuming previous profits would mean, in an explanation of principles, circular reasoning. "Credit creation", therefore, becomes an essential part both of the mechanism of the process and of the theory explaining it" (1928:67).

Therefore, contrary to the assumptions of "modern" works on the links between finance and (endogenous) growth ((King and Levine, 1993; Levine, 2004, to quote but a few), Schumpeterian vision does not deal with money and finance as a problem of efficiency of the use of loanable funds (Ülgen, 2013a). The key role banks play in capitalist evolution is the financing of productive activities through credit-money creation. In this role banks are the *ephor* of the economic development as they create money in order to finance the entrepreneurial innovative projects which cannot be satisfied by existing savings. While Schumpeterian economic development is usually related to industrial entrepreneurs' innovative activity, Schumpeter (1934) points out the crucial role of banks in capitalist economy as he states that banks make possible the carrying out of new combinations by authorizing entrepreneurs in the name of society to implement innovations. Credit-money is created by banks to finance entrepreneurial profit expectations and then supports the growth process. Banking system provides means required to lead economic development to go beyond the static circuit. Through credit, entrepreneurs are given access to the social stream of goods before they have acquired the normal claim to it. The credit structure extends not only beyond the existing money basis, but also beyond the existing commodity basis: "Detaching productive means from their circular flow and allocating them to new combinations is possible by credit creation" (Schumpeter, 1934:71).

In a capitalist economy, economic development is related to money markets and especially to banks. When the finance

required for further production or investment expenditures is not granted by banks, entrepreneurs cannot undertake their projects (Ülgen, 2007). By allowing or rationing credit, banks affect economic development positively or negatively. As (Bellofiore, 1991:381) emphasized: "the credit demand for finance does not come after, but before, entrepreneurial gains. In Wicksell credit supply satisfies each entrepreneurial demand, whereas in Schumpeter banks ration credit and have a positively supply curve". What could therefore the effects of bank and financial innovations be on entrepreneurial innovation-led creative destruction?

3. Schumpeterian competition and financial innovations: is this a creative change process?

Schumpeter (1934, 1970) asserts that banks and finance are always at the core of capitalist economy's innovation dynamics. But he does not really study financial innovations in his theoretical framework. However, it seems to be suitable to develop the scope of the Schumpeterian analysis in order to point out that when financial dynamics develop in a regulation-free environment, financial innovations may generate a process of destructive creation and require a new institutional organization of banks and financial markets to tackle with the endogenous instability of capitalism. From this perspective, Minsky's capitalist instability analysis offers a relevant way of exploring and understanding the process of financialization and its impacts on the economy and analyzing possible policy alternatives for a sustainable financial system (Whalen, 2009).

3.1. Unproductive innovations and instability

Numerous works show that in highly liberalized environment, unfettered and unhealthy bank and financial competition may lead to innovations resting on excessive risk taking and then feeding financial fragility (Hellman et al., 2000; Burlamaqui and Kregel, 2005). Liberal/deregulated environment generates specific institutional and competitive pressures that (ill)shape behaviour of banks and financial intermediaries (through their innovation strategies) and thus (ill)affect the mechanisms of financing of productive entrepreneurial activities which in turn shape the path of economic development.

Financial innovations actually develop under two kinds of pressure. First, banks innovate in response to authorities' regulatory constraints. Second, they also innovate in order to prevent competition from other financial intermediaries that are brought into the markets thanks to financial liberalization policies. Financial liberalization increases bank competition and leads financial institutions to innovate in order to defend their market shares or to enter new markets. In a *given institutional environment*, banks combine these two phenomena and create new financial products and processes. To the extent that regulatory/technological barriers among different actors³, markets and national economies tumble, financial innovations proliferate. This process feeds an unprecedented expansion of financial markets through

new mechanisms and products resulting in higher quantitative efficiency of financial relations both in terms of variety and time-saving at national and international levels. Consequently, numerous hedge instruments/financial derivatives are generated in order to allow banks to cover positions against various risks. These new instruments and techniques also permit agents to transform different risks into new financial positions that are "structured" in order to reduce individual risks that stem, in turn, from new financial products. The use of bank standby letters of credit enhances the negotiability of debt instruments issued by nonbanks. In this "off-balance sheet banking", activities involve commitments which are not normally included as assets or liabilities under conventional procedures. Therefore, such innovative practices increase risks that banks assume in pursuit of higher returns.

It is worth noting that financial innovations are not necessarily related to the creation of new productive value. They are related, before all, to the desire of increasing the speed and scope of speculative returns; e.g. short-term and short-sighted profit operations. In this respect, financial innovations appear to be a special kind of innovation different from Schumpeterian entrepreneurial innovations in their logic as well as in their potential consequences on economic development. In a financially liberalized environment, speculative profit-seeking expectations are fuelled through new opportunities and lead banks to support specific operations such as LBOs and real estate-backed assets. Such a strategy gives more confidence to lenders who take much riskier positions and accept low-yield assets while borrowers finance new acquisitions by issuing new liabilities on highly open positions. This evolution relies on optimistic expectations based on the observation of speculative profits easily made. It then becomes the rule commonly accepted by market actors and frames rational standard behaviour and beliefs. Instead of questioning the relevance of highly speculative opportunistic short-term choices, market actors consider that "the dance" can continue without systemic concern. The resulting convention determines rational behaviour assumed to be efficient at the micro-level: "The factors that impede such transformation are numerous (...). In the first place morals in the field of finance have been too frequently determined by that actually prevails in practice. Once the tradition becomes established, lawyers, bankers, accountants tend to bow to it without question or hesitancy. It becomes the proper thing to do because it has always been done or because every one else is doing it. The conventions of the various professions are too often accepted without inquiry as to their social or economic consequences. The accepted way of doing things becomes the proper way of doing them. The ethics of the situation are subtly adjusted to conform to the requirements of the tradition. These traditions are chains which bind fast these professions to the ancient order of finance. They constitute one of the most potent imponderables which promises to delay the advent of any new era either in practices or in ethics" (Douglas, 1936).

In this context, self-regulation is viewed as the suitable way of ensuring the macro-efficiency of markets. However, it appears that whatever the supervision mechanisms implemented by public authorities over micro-decision units, in a micro-prudential schema the incentives fail to prevent

³ Banks, intermediaries, insurance companies, etc.

short-sighted individual behaviour which often develops *macular degeneration* reflecting the very limited horizon of decentralized private expectations and subsequent actions. This macular degeneration is permitted by new speculation-oriented financial products and processes that support a new regime of (financial) accumulation based on the expected price rise of assets and transform the financing relations into Ponzi schemes à la Minsky (Ülgen, 2013b). According to this schema, in the period before the 2007/08 crisis, the economy turns out to a bubble environment based on real-estate-related debt leveraging in search of capital gains (Hudson, 2010). The regime of accumulation therefore moves towards more speculative opportunities encouraged by short-term criteria and financial operations. From this perspective, innovation dynamics of financialized capitalism rest on securitization which is a characteristic of advanced financial systems. In developed financial markets banks innovate in products as well as in process through securitization creating financial papers to structure credits previously granted. These securities are sold as sound investment vehicles, highly rated by private rating agencies. Therefore investment funds can use these securities as collateral for new leveraged loans that are also connected to short-term asset-backed commercial papers and then provoke strong interconnections between complex products and market players whose sustainability depends on short-sighted fragile and decentralized microeconomic decisions in markets. Risk-covering tools rest more and more on systematically riskier instruments. Individuals try rationally to cover themselves at micro-level whereas risks augment incessantly at macro-level.

Contrary to the liberal approach (see, for instance, Kaminsky and Schmukler, 2003) which asserts that financial liberalization and subsequent innovations must improve the efficiency of the working of financial markets by reducing risks and canalizing savings towards “socially” profitable investments, the boom financed by the speculative euphoria in the 2000s generates pervasive transformations in portfolios the liquidity level of which decreases. This gives rise again to endogenous financial instability studied by Minsky: “The growth in the money market mutuals in the 1980’s led to a large demand for short term marketable corporate liabilities. The combined effect of these two developments was the growth in speculative financing. Leveraged buy-outs often included “payment in kind” bonds, i.e. the capitalization of interest (Ponzi finance)” (Minsky, 1992:19).

The rise of reckless finance and speculative excess may then generate a Schumpeterian cycle (Otter and Siemon, 2010) that threatens the stability of the entire economy. The coming up of this cycle is a result of the rise of speculative positions (“the great wave of mere speculative punting”, Schumpeter, 1927:41–42) that stops the development: “A considerable part of current and investment operations will show loss as soon as prices fall, as they will by virtue of the primary process. Part of the debt structure will crumble. (...) Freezing of credits, shrinkage of deposits, and all the rest follow in due course” (Schumpeter, 1939:148).

To deal with such a situation when financial innovations enter into a process of destructive creation, the Schumpeterian economics points to stronger public regulation of financial markets.

3.2. Financialized economy and public regulation

Financial liberalization is obviously related to a specific institutional environment which is supported by the belief that liberalized and open markets are more prone to efficient innovations and able to self-adjust without strong public regulatory constraints. This belief let private control mechanisms and banks to assess and to manage themselves various risks that actors and markets may generate. It is then assumed that free financial markets could minimize the possibility of financial crises and the need for government bailouts. More decentralized and private control practices (micro-prudential mechanisms) replace macro-prudential public supervision rules. The light-touch regulation of financial institutions and markets allows banks to manage their risks through their own internal (IRBs, Internal rating based) models and through ratings (rating agencies) they purchase on the securities they issue. Numerous “pro-liberal” works (Van Hoose, 2010, to quote but a few) present some pitfalls of highly regulated banking systems and argue that tight regulatory policies are negatively associated with bank stability. This theoretical and policy perspective is at the core of deregulatory policies that have been implemented since the late 1970s.

This evolution characterizes decentralized decision process and makes that capitalist economy’s evolution as well as its financial stability do not rely on planned and system-wide consistent behaviour of private individuals. In such a world some finance-specific factors must be underlined. Financial innovations which lead individuals to diversify risks generate macroeconomic interdependencies among institutions. They obviously change economic conditions as much as entrepreneurial innovations. Most of the recent monetary and financial innovations seem to increase the elasticity of finance. They affect the functioning of economic engine because they modify the monetary and financial conditions on which the whole economic structure is founded. However, in view of the current financial disequilibria faced by numerous economies in the world, such financial innovation dynamics present a real challenge to the systemic stability.

In such a context, actors and markets, and especially banks, adopt fragile strategies. In expansionary periods, while cumulated disequilibria grow, the desire to prolong the boom and to make further profits generate inconsistent behaviour such that private actors eschew prudential behaviour and prefer to continue to engage themselves in likely-profitable positions. However, the very nature of market’s logic rests on herd behaviour of individuals and institutions. In his analysis of the 1929 crisis, Schumpeter observes the same type of phenomenon: “Since stock prices have more degrees of freedom than other prices have, and since financial groups – pools and others – confront a public very much more excitable and very much less intelligent than the constituent individuals are in their ordinary business pursuits, it is tempting to stress mere mass psychology, on the one hand, and mere abundance or scarcity of funds, on the other” (1939:682–683).

The micro-rationality implies immediate exit from markets in case of bad news and sudden reversal (when some institutions are expected to default on payments) and then may provoke a race to withdrawal of lenders. Furthermore, under the hypothesis of herd behaviour, economic agents

usually follow similar strategies on markets. During boom periods, individuals and institutions enter into increasingly risky operations while the stop of optimistic expectations pushes agents to adopt defensive strategies and exit financial circuits. In the first case, bubbles are fuelled without precaution, and speculation gains strength. In the second case, illiquidity comes into the picture and is often transformed into the insolvency even for large banks. Then the Keynesian liquidity preference dominates money markets as a sign of depression. In such a depressive situation the only way to stop the systemic disintegration seems to be the public intervention (Schumpeter, 1947:395).

The core problem is that in a financially liberalized capitalist economy, financial innovations mainly rely on speculative short-term profit opportunities and provoke a rapid expansion of financial operations and markets that are dissociated from the financial needs of long-term productive activities. From this perspective, Minsky's analysis of financial instability of capitalism can be considered as a consistent way of developing Schumpeterian theses on capitalist evolution. Minsky (1992) maintains that the development of sound financial systems is the key issue to be studied in a Schumpeterian framework. Giving the central role of money markets in economic development and following Schumpeter, who remarked that: "This inability of capitalism to police itself is as striking as its inability to protect itself (...). But it is largely this inability that produces crises as distinguished from mere depressions" (Schumpeter, 1939:660), Minsky (1986) states that it would be possible to stabilize the unstable capitalist economy if consistent regulatory rules are implemented in financial markets.

Almost eighty years ago, Schumpeter maintained that a policing power is required to deal with reckless banking, speculative excesses, and fraudulent or irresponsible business activity. Schumpeter stated that the recovery after the crisis of the 1930s has been substantially facilitated by the Banking Act of June 16, 1933, which introduced important reforms: "The most important refers to strengthening the Federal Reserve System's power over members, particularly with a view to regulating extension of credit for speculative purposes; to holding company and securities affiliates; to stricter centralization of open-market operations; to branch banking, and for us most important of all, to deposit 'insurance'" (1939:987). The Schumpeterian approach on economic development offers a comprehensive analysis which points to the consistency of voluntary and system-wide regulation of capitalist economy in the aim of tackling its endogenous disequilibria: "no social system can work which is based exclusively upon a network of free contracts between (legally) equal contracting parties and in which everyone is supposed to be guided by nothing except his own (short-run) utilitarian ends" (*The March into Socialism*, in 1947:424).

4. Concluding remarks

More than one hundred years after the first edition of the *Theory of Economic Development*, Schumpeter is still standing as the Prophet of Innovations, the most known forerunner of the dynamic analysis of capitalist economy. Through entrepreneurs' innovations the creative destruction

comes into the picture and points to the key "mechanics" of economic development. Yet, an important part of the Schumpeterian framework relies on the analysis of the credit system and banks that finance innovations and then economic development. In an institutionalist setting Schumpeterian economics offers a relevant endogenous-money-economy schema since bank-credit-financing of entrepreneurial activities is considered as the keystone of capitalist dynamics.

However, unlike his creative destruction analysis resting on entrepreneurial innovations-based incessant economic change, Schumpeter (and modern Schumpeterian works – see, for instance, Hanusch and Pyka, 2007) did not develop an integrated analysis of financial dynamics to apprehend the possible consequences of financial innovations for economic development. Unfortunately, most modern economists frequently use the real-sector-based Schumpeterian evolutionary framework to put to the fore the so-called positive effects of financial markets liberalization and its subsequent financial innovations on economic growth. But, contrary to the assumption that deregulated financial markets would lead to further innovations and then to efficient financing conditions of economic activities, this article sought to shed light on the very nature of financial innovations of the (neo)liberal era and on the links between financial innovations and financial instability.

Developing a monetary reading of the Schumpeterian analysis we argued that financial innovations and competition were not able to spontaneously improve economic development. Such a statement rests on Hyman Minsky's analysis of financial instability hypothesis. Minsky, who was a PhD student of Schumpeter, aimed at showing in his work that financial innovations often provoke a destructive creation path in a liberalized environment. This result is consistent with the analytical heritage of Schumpeter. Economic development needs financial stability, a condition that cannot be reached through the reckless/speculative finance. To direct banks' and financial intermediaries' strategies to finance long-term productive investments and given the inability of capitalism to police itself, consistent macro-regulatory schemes have to be developed.

The ongoing worldwide crisis might give economists and policy makers a valuable opportunity to go back over their wrong doctrinal belief and to redesign more relevant analytical schemas to be implemented according to some better-organized and coordinated social welfare objectives. Maybe, from the crisis could be born new positive perspectives such as the transition from Chaos to Gaia and from Gaia to Eros?

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